

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application 022931802 filed in European Patent Office (EPO) on December 20, 2002.

Claim Objections

2. Claims 5-8, 10, 12-17 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim shall not serve as a basis for any other multiple dependent claim. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 1 provides for the method of communication using Mobile Internet Protocol, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Art Unit: 4177

Claim 1 is rejected under 35 U.S.C. 101 because the claimed recitation of Mobile IP communication, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 2-17 are rejected because they depend on claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US Patent Application No. 2004/0047348) in view of Malki et al. (US Patent Application No. 2001/0046223).

Regarding claim 1, O'Neill teaches a method of communication using mobile Internet protocol between a Mobile Node and Correspondent Nodes in a network that also comprises a Home Agent for the Mobile Node, said Mobile Node having a plurality of network interfaces with said network, said method including per-flow handover management of data flows (Fig. 11, #910, #920, #930, #940, #950, and [0047], line 19) which comprises selectively transmitting

Art Unit: 4177

different data flows between said Mobile Node and Home Agent over respective ones of said network interfaces identified by respective Internet addresses (Fig. 11, #910, #960b, #960e, and [0047], lines 3-4, wherein the Mobile Node coupling to both access nodes 920 and 940 must have different network interfaces),

characterised in that a plurality of Home Addresses for said Mobile Node are registered with said Home Agent, respective ones of which are allocated dynamically to said different data flows ([0048], lines 8-10) between said Mobile Node and Home Agent, and respective network interfaces for said Mobile Node are allocated dynamically ([0052], lines 8-12, wherein Binding Update due to the Mobile Node moved to a new network dynamically binds the new network address to the home addresses so that said different data flows between said Mobile Node and the Home Agent are allocated to respective network interfaces and the allocation of network interfaces may be modified dynamically ([0043], lines 40-44).

O'Neill does not specifically teach the communication between the Mobile Node and Correspondent Node (CN), although CN is a standard element in Mobile IP.

Malki et al. teach the communication between the Mobile Node and Correspondent Node (CN) using Mobile IP protocol (Fig. 3, #305, #335).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the O'Neill invention to include the Correspondent Node as taught by Malki et al. to produce predictable results in supporting IP mobility.

Regarding claim 2, O'Neill further teaches that said different data flows are communicated substantially simultaneously between said Mobile Node and the same Correspondent Node through said respective network interfaces with respective Home Addresses (Fig. 2, #282, and p5, left col., lines 33-37, wherein three IP packet flows associated with different Home Addresses are communicated simultaneously between the Mobile Node and Correspondent Node via the Home Agent).

Regarding claim 3, O'Neill further teaches that Mobile Prefix Solicitation and Mobile Prefix Advertisement messages are exchanged between said Mobile Node and said Home Agent and said Mobile Node uses prefixes from those messages to establish, configure, refresh and/or modify said respective Home Addresses (Abstract, lines 5-6, and p7, left col., last line – right col., first line, wherein a Mobile Node installing/configuring multiple home address from different address prefix at a Home Agent must involve obtaining the prefixes from the HA via messaging, and the home addresses can be refreshed and deleted).

Regarding claim 4, O'Neill further teaches that said Home Agent performs Duplicate Address Detection on Home Addresses that said Mobile Node establishes, configures, refreshes and/or modifies (p4, left col., last line – right col., line 3, updating the binding table at the Home Agent must involve detecting duplicated home addresses allocated).

Regarding claim 5, O'Neill further teaches that a security association exists between said Home addresses identifying the Mobile Node and said Home Agent ([0048], lines 27-30).

Regarding claim 6, O'Neill further teaches that said Mobile Node performing a handover of a data flow comprises sending a Binding Update with the associated Home Address and the IP address of the selected interface as Care-of Address to said Home Agent ([0047], lines 18-20, wherein the MIP signaling includes Binding Update).

Regarding claim 7, O'Neill further teaches that said Mobile Node performing a handover of a data flow, comprises sending a Binding Update with the associated Home Address and the IP address of the selected interface as Care-of Address.

O'Neill does not specifically teach sending a Binding Update with the associated Home Address and the IP address of the selected interface as Care-of Address to the Correspondent Node.

Malki et al. teach sending a Binding Update with the associated Home Address and the IP address of the selected interface as Care-of Address to the Correspondent Node (Fig. 3, #305, #335, and [0045], lines 3-5).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the O'Neill and Malki et al. invention to include the Correspondent Node as taught by Malki et al. to produce predictable results in supporting IP mobility.

Regarding claim 8, O'Neill further teaches that said Mobile Node performing a handover of a data flow includes freeing a Home Address that is no longer used for communication between said Mobile Node and said

Correspondent Nodes (Abstract, lines 5-6, wherein the Home Address deletion should include deletion of the home addresses no longer used).

Regarding claim 9, O'Neill further teaches that said Mobile Node identifies at least one of said Home Addresses as a primary Home Address that is never freed, other Home Addresses being preferentially used for communication between said Mobile Node and said Correspondent Nodes ([0014], lines 1-3, and lines 13-16, wherein the home address associated with the local configuration should be persistent, i.e. never dropped).

Regarding claim 10, O'Neill teaches a Mobile Node for a method of communication as claimed in any preceding claim, comprising data flow separator and director means for classifying at least outgoing data packets, selecting and allocating a plurality of respective network interfaces and a plurality of corresponding Home Addresses for different data flows between said Mobile Node and the Home Agent, and modifying the allocation of network interfaces and Home Addresses dynamically (Fig. 11, #911 #912, #913, wherein the Mobile Node #910 coupled with both Access Nodes (Foreign Agents) #920 and #940 including the communication routine, aggregated MIP routine and binding table must have the data flow separator and director means for classifying the data packets, selecting and allocating respective network interfaces and corresponding home addresses).

O'Neill does not specifically teach the communication between the Mobile Node and Correspondent Node (CN), although CN is a standard element in Mobile IP.

Malki et al. teach the communication between the Mobile Node and Correspondent Node (CN) using Mobile IP protocol (Fig. 3, #305, #335).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the O'Neill invention to include the Correspondent Node as taught by Malki et al. to produce predictable results in supporting IP mobility.

Regarding claim 11, O'Neill further teaches that said data flow separator and director means comprises a Home Address table identifying the current Home Addresses of the Mobile Node and corresponding Care-of Addresses, and a flow mapping table identifying the Correspondent Node associated with each current data flow and the corresponding selected Home Addresses and Care-of Addresses (Fig. 10, and Fig. 11, #913, wherein the binding table should have the home address and flow mapping information).

Regarding claim 12, O'Neill further teaches that said data flow separator and director means is responsive to applications running on said Mobile Node in classifying incoming and outgoing data packets (Fig. 11, #911, #912, wherein the communication routine and aggregated MIP routine are associated with applications running on the Mobile Node).

Regarding claim 13, O'Neill further teaches that said data flow and director separator means is responsive to protocol headers of incoming and outgoing data packets in classifying said data packets ([0050], lines 32-34).

Regarding claim 14, O'Neill further teaches that said data flow separator and director means comprises an interface responsive to the network operator in classifying said data packets ([0014], line 12).

Regarding claim 15, O'Neill further teaches that said data flow separator and director means is responsive to applications running on said Mobile Node in selecting and allocating network interfaces and corresponding Home Addresses for incoming and outgoing data packets (Fig. 11, #911 #912, #913, wherein the Mobile Node #910 coupled with Access Nodes (Foreign Agents) #920 and #940 including the communication routine, aggregated MIP routine and binding table are used for classifying the data packets, selecting and allocating respective network interfaces and corresponding home addresses).

Regarding claim 16, O'Neill further teaches that said data flow separator and director means comprises an interface responsive to the network operator in selecting and allocating network interfaces and corresponding Home Addresses for incoming and outgoing data packets ([0014], line 12).

Regarding claim 17, O'Neill further teaches that said data flow separator and director means comprises means for registering user preferences and responsive to the preferences registered in selecting and allocating network interfaces and corresponding Home Addresses for incoming and outgoing data packets ([0043], lines 40-44).

Art Unit: 4177

Conclusion

7. Any Response to this Office should be **faxed** to (571) 273-8300 or **mailed to:**

Commissioner for Patents,
P.O. Box 1450
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Hand-delivered responses should be brought to
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Zhou whose telephone number is (571) 270-3451. The examiner can normally be reached on Monday - Friday 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benny Q. Tieu can be reached on (571) 272-7490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 4177

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YZ

/Benny Q Tieu/

Supervisory Patent Examiner, Art Unit 4177